

**TALINUM RUGOSPERMUM HOLZ., NEW TO LOUISIANA WITH NOTES ON
TERETE-LEAVED TALINUM IN LOUISIANA**

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ABSTRACT

Talinum rugospermum Holz. (Portulacaceae), previously unreported in Louisiana, has been found in xeric sandylands in Caddo Parish. *Talinum parviflorum* Nutt. also occurs in Louisiana, but on saline prairies and sandstone outcrops.

KEY WORDS: *Talinum rugospermum*, *Talinum parviflorum*, Portulacaceae, Louisiana

INTRODUCTION/METHODS

Talinum rugospermum Holz., a north-central and Great Plains species recently found in Texas (Nixon, *et al.* 1980; Cochrane 1993; Singhurst 1996; Texas Natural Heritage Program 1995; Texas Organization for Endangered Species 1993), has not been reported for Louisiana (MacRoberts 1989; Teague & Wendt 1994; Louisiana Natural Heritage Program 1995).

In light of the frequency with which Singhurst (1996) reported *Talinum rugospermum* in east Texas, we reexamined herbarium collections (NLU, LSU, LSUS) from Louisiana. Herbarium material for terete-leaved *Talinum* is often indeterminate: seldom are flowers collected, seeds are easily lost after the plant has been pressed, and roots are not always present. Fresh, or at least well preserved, material is almost a necessity for a positive identification (Ware 1967). Therefore, beginning in May 1997 we examined flowering specimens in the field and plants collected from ten locations in east Texas and west Louisiana and maintained in the laboratory.

Our laboratory sample consisted of plants from five sandstone outcrops in Natchitoches and Sabine parishes, Louisiana, and Jasper County, Texas (MacRoberts & MacRoberts 1993, 1995a; Marietta & Nixon 1984), two saline prairies in Winn and

Caddo parishes, Louisiana (Smith 1988), and three xeric sandylands in Caddo Parish, Louisiana, and Anderson and Nacogdoches counties, Texas (MacRoberts & MacRoberts 1995b; Nixon, *et al.* 1980).

Louisiana and east Texas have only two terete-leaved *Talinum*. We obtained from Robert W. Kiger (pers. comm.) a key for terete-leaved species for this region, which we have slightly modified on the basis of our observations.

1. Stamens 13-28; stigmas 3, elongate, about one-third length of style; seed coat rugose (at 10×); root deep.....*T. rugospermum*
1. Stamens 5-14; stigma 1, capitate; seed textured but not rugose (at 10×); root shallow..... *T. parviflorum*

RESULTS

We found *Talinum rugospermum* at the xeric sandyland sites in Caddo Parish, Louisiana, and Nacogdoches and Anderson counties, Texas. The plants at all other sites were *T. parviflorum*.

In Louisiana and east Texas, on sunny days *Talinum rugospermum* flowers open between 4:15 to 6:00 pm CDT. Petal length is about 8 mm; petals are mucronate, and magenta. The style splits to about one third of its length into three stigmas (Figure 1). When the flower is fully open, the stigmas spread widely (see illustration in Gleason 1968). There are 13 to 28 stamens; in a sample of 111 greenhouse flowers from Caddo Parish and Nacogdoches County, the mean number of stamens was 21.38, SD 3.24. Anthers are small and spherical or slightly oblong. The seed is corrugate-rugose and about 1.25 mm wide.

Talinum parviflorum flowers open between 5:00 and 7:00 pm, an hour after *T. rugospermum*. Petals are about 5.5 mm long, not noticeably mucronate, and light pink. Stigmas are capitate but trilobed. Stamens number between 5 and 14. In a sample of 183 greenhouse flowers from seven sites in western Louisiana and eastern Texas, the mean number of stamens was 8.02, SD 1.74. Anthers are oblong. The seed is textured but not corrugate-rugose and is about 1 mm wide.

There was a slight overlap between the species in stamen number. In the sample of 183 *Talinum parviflorum* and 111 *T. rugospermum*, one *T. parviflorum* had 13, and one 14 stamens; and two *T. rugospermum* had 13 stamens.

Talinum rugospermum in Caddo Parish grows in Betis loamy fine sand (Edwards, *et al.* 1980). The sands are well drained and acidic. These soils are low in most minerals, for example, P, K, Ca, and Mg (MacRoberts & MacRoberts 1995b). Associated species include *Berlandiera punila* (Michx.) Nutt., *Clematis reticulata* Walt., *Cnidoscolus stimulosus* (Michx.) Engelm. & A. Gray, *Commelina erecta* L., *Coreopsis intermedia* Sherff, *Crataegus uniflora* Muenchh., *Cyperus retrofractus* (L.) Torrey, *Dalea villosa* (Nutt.) Sprengel var. *grisea* (Torrey & A. Gray) Barneby, *Froelichia floridana* (Nutt.) Moq., *Helianthemum georgianum* Chapm., *Hymenopappus artemisiaefolius* DC., *Monarda punctata* L., *Opuntia humifusa* (Raf.)

Raf., *Paronychia drummondii* Torrey & A. Gray, *Physalis heterophylla* Nees, *Pinus echinata* P. Mill., *Pinus taeda* L., *Pedimelum hypogaeum* (Nutt. ex Torrey & A. Gray) Rydb. var. *subulatum* (Bush) J. Grimes, *Prunus umbellata* Ell., *Quercus incana* Bartr., *Q. stellata* Wang., *Rhus aromatica* Ait., *Scutellaria cardiophylla* Engelm. & A. Gray, *Stillingia sylvatica* L., *Stylosanthes biflora* (L.) B.S.P., *Tradescantia reverchonii* Bush, *Vaccinium arboreum* Marsh., *Vitis aestivalis* Michx., *Vitis rotundifolia* Michx., and *Yucca louisianensis* Trel.

Talinum rugospermum in east Texas occurs in similar habitat with the same associated species (Singhurst 1996, pers. obs.).

We examined herbarium collections of terete-leaved Louisiana *Talinum* from NLU, LSUS, and LSU. For reasons given above, some specimens were indeterminate. Using mainly seed and habitat characteristics, we conclude that *T. parviflorum* occurs in Sabine, Caddo, and Natchitoches parishes. Our observations on fresh material definitely put *T. parviflorum* in Caddo, Sabine, Winn, and Natchitoches parishes. Herbarium material for Red River and Vernon parishes is indeterminate, but the habitat and plant size for both specimens suggest they are *T. parviflorum*. Except our earlier Caddo Parish collection (MacRoberts & MacRoberts 2757 [LSUS] originally misidentified as *T. parviflorum*), none of the herbarium specimens is *T. rugospermum*.

The distribution of terete-leaved *Talinum* in Louisiana is shown in Figure 2.

We found *Talinum parviflorum* in two habitats: shallow soils on sandstone outcrops in Sabine and Natchitoches parishes and on saline prairies in Winn and Caddo parishes. We have described the former sandstone outcrop plant community in detail elsewhere (MacRoberts & MacRoberts 1993). The saline prairies have yet to receive detailed attention (Smith 1988). Both habitats are very different from the xeric sandylands in which *T. rugospermum* occurs (MacRoberts & MacRoberts 1995b).

Even in the limited sample we examined for this project, we noted what appear to be consistent morphological differences among *Talinum* populations. For example, the *T. parviflorum* populations differed from each other in flower size, stamen number, and style length relative to stamen length: in some populations the stigma extends beyond the anthers; in others the stigma and anthers are the same height. Such local differences have been noted by Reinhard & Ware (1989), who feel it would be impractical and undesirable to recognize such local variations taxonomically.

DISCUSSION

The literature on *Talinum* and the communities in which it grows suggests that there is little awareness that *Talinum* occurs in east Texas and west Louisiana (Carter & Murdy 1985) or that sandstone outcrops floristically comparable to those found in Tennessee, Arkansas, and Alabama (Quartermann, *et al.* 1993) occur in east Texas and Louisiana. Terete-leaved *Talinum* has been known from Louisiana since at least the mid-nineteenth century when Riddell (1852) included it in his *Catalogus Florae Ludovicianae*. Central Louisiana and east Texas sandstone outcrops are well known

plant communities and have been the subjects of several floristic surveys (Marietta & Nixon 1984; MacRoberts & MacRoberts 1993).

Talinum parviflorum is on the Louisiana Natural Heritage Program (1995) rare plant list. It is rare because its habitat (saline prairies, sandstone outcrops) is vanishing. The xeric deep sand habitat in which *T. rugospermum* occurs is also rare in Louisiana (MacRoberts & MacRoberts 1995b). These three plant communities are on the Louisiana Natural Heritage imperiled list (Smith 1988; Teague & Wendt 1994).

Talinum rugospermum has been under consideration for listing as a federally endangered or threatened species. Cochrane (1993:33) studied its status and distribution and found that, at least in the northern part of its distribution, it "is not in imminent danger of extinction at the national level, but it is a potentially vulnerable species because it occurs in only a few scattered localities over most of its total range, exists in low numbers at most stations, and occupies very restricted habitats." He adds that "few populations enjoy public or private preservation status." This last point underlines the problem: both *T. parviflorum* and *T. rugospermum* favor habitat that is being destroyed rapidly. Fortunately, most known Louisiana *T. parviflorum* sites are on the Kisatchie District of the Kisatchie National Forest where they are protected (MacRoberts & MacRoberts 1995a). The one known site in Louisiana for *T. rugospermum* is in an active oil field and has a four-wheeler trail through it. Since it only covers a few square meters, its existence is precarious.

DOCUMENTATION

Talinum rugospermum: UNITED STATES. Louisiana: Caddo Parish: MacRoberts & MacRoberts 2757 [LSUS], 3338 [LSU], 3339 [CM].

Talinum parviflorum: UNITED STATES. Louisiana: Caddo Parish: Overby 189 [NLU]; MacRoberts & MacRoberts 3354 [LSU,LSUS]. Natchitoches Parish: Brown 8001 [LSU]; MacRoberts & MacRoberts 2056 [SFRP], 1758, 3332 [LSU], 1726, 3313 [LSUS], 1759, 1780 [VDB], 3313 [CM,WIS], 3333 [WILLI]; Thomas 107220, 110300 [NLU]. Red River Parish: Gilmore & Smith 3830 [NLU]. Sabine Parish: Allen 12816 [NLU]; MacRoberts & MacRoberts 3359 [LSU]. Vernon Parish: Thomas 105079 [NLU]. Winn Parish: MacRoberts & MacRoberts 3353 [LSU].

While this paper is concerned with terete-leaved *Talinum* in Louisiana, we did collect some information on Texas *Talinum* during the course of the work. While our Texas work was not thorough, and we did not examine herbarium collections, we can report *Talinum parviflorum* from Newton Co. (MacRoberts & MacRoberts 3360 [TEX]) and Jasper Co. (Marietta 116 [ASTC]), and *T. rugospermum* from Nacogdoches Co. (MacRoberts & MacRoberts 3334 [TEX], 3335 [WIS], 3336 [LSUS], 3337 [WILLI]) and Anderson Co. (MacRoberts & MacRoberts s.n. [TEX]). The Nacogdoches Co. site is where Nixon, et al. (1980) first reported this species from Texas.

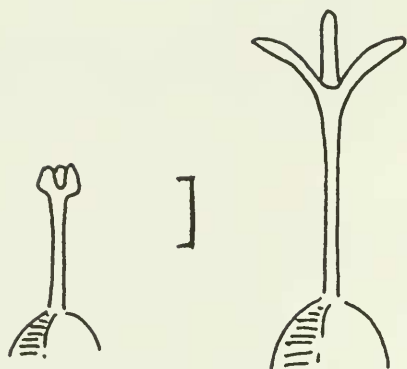


Figure 1. Pistil of T. rugospermum (right) and T. parviflorum (left). Scale is 1 mm.

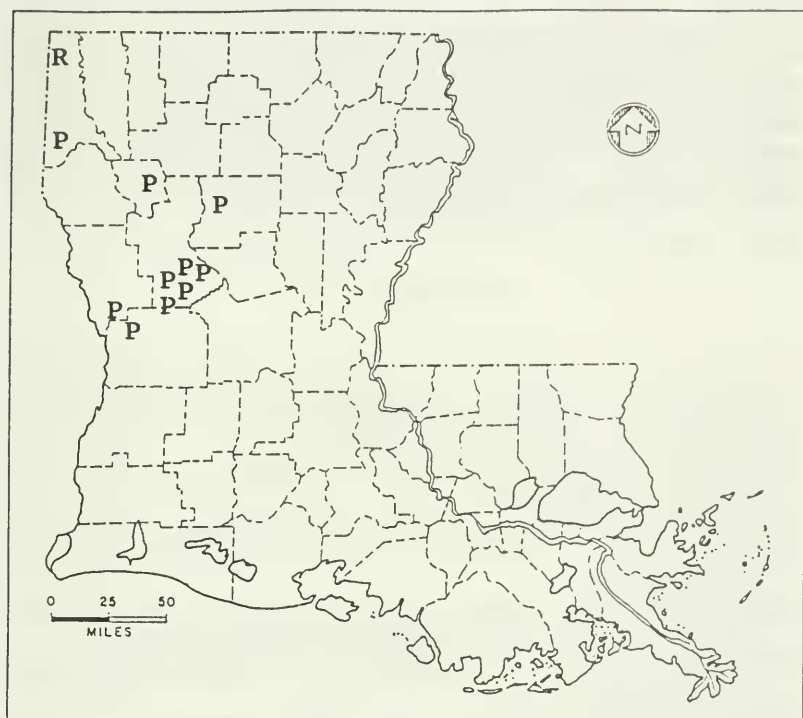


Figure 2. Distribution of *Talinum rugospermum* (R) and *T. parviflorum* (P) in Louisiana.

ACKNOWLEDGMENTS

Theodore S. Cochran, Stewart Ware, Robert Kiger, R. Dale Thomas, Jason Singhurst, and Mark Mayfield aided in various aspects of this work. David Moore took us to the Winn Parish saline prairie on May 5, 1997. The Helpmate Road site in Caddo Parish was first shown to us by Nelwyn McInnis on January 15, 1995. Part of this work was conducted while we were engaged in various volunteer and cost-share agreements with the Kisatchie National Forest and the National Forests and Grasslands in Texas. Stewart Ware, Robert Kiger, and Theodore Cochran commented on an earlier version of this paper.

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